Listing of Claims:

The listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Original) A computer-readable medium having stored thereon a data structure, the data structure including data representing a characteristic of an optical member, the data structure comprising:

at least one field containing information corresponding to a three-dimensional map of the optical member, the map including a plurality of refractive index measurements taken at a plurality of interior locations within the optical member.

2. (Original) The medium of claim 1, wherein the information includes compressed digital data.

3. (Original) The medium of claim 1, wherein the medium includes at least one floppy disk.

4. (Original) The medium of claim 1, wherein the medium includes a hard disk.

5. (Original) The medium of claim 1, wherein the medium includes a CD-ROM.

6. (Original) The medium of claim 1, wherein the medium includes an electronic memory.

7. (Original) The medium of claim 1, wherein the medium includes an optical storage medium.

8. (Original) The medium of claim 1, wherein the data structure comprises a database.

9. (Original) The medium of claim 1, wherein the information includes a plurality of refractive index measurements of a strip extracted from the optical member, the plurality of refractive index measurements taken at a plurality of locations normal to a cross-sectional area formed by a radial axis of the optical member and a axis normal to the radial axis.

10. (Original) The medium of claim 1, wherein the at least one field includes a field identifying the optical member.

11. (Original) The medium of claim 1, wherein the at least one field includes a homogeneity map of the optical member.

12. (Original) A computer-readable medium having computer-executable instructions for performing a method for characterizing an optical member, the method comprising:

providing information corresponding to a plurality of refractive index measurements taken at a plurality of interior locations within the optical member; and

converting the information into a three-dimensional map of the optical member, the three-dimensional map including a plurality of refractive index values distributed throughout the interior of the optical member.

13. (Original) The method of claim 12, wherein the step of providing further comprises:

extracting a radial strip from the optical member, the strip having a cross-sectional area in a plane formed by a radial axis of the optical member and an axis normal to the radial axis; and

taking a plurality of refractive index measurements of the strip at a plurality of locations in the cross-sectional area.

14. (Original) The method of claim 12, wherein the step of providing includes transmitting the information using e-mail.

15. (Original) The method of claim 12, wherein the step of providing includes transmitting the information over the Internet.

16. (Original) The method of claim 12, wherein the step of providing includes transmitting the information using a telecommunications network.

17. (Original) The method of claim 16, wherein the network is a wireless network.

18. (Original) The method of claim 12, wherein the step of providing includes physical delivery of a computer readable medium having stored thereon a data structure, the data structure including at least one field containing information corresponding to a three-dimensional map of the optical member, the map including a plurality of refractive index measurements taken at a plurality of interior locations within the optical member.

19. (Original) The method of claim 12, further comprising:

using the map to locate a portion of the optical member having refractive index values corresponding to specified refractive index values; and

extracting the portion to form an optical blank having refractive index values corresponding to specified refractive index values.

20. (Original) The method of claim 19, further comprising:

providing the optical blank; and

providing information corresponding to a three-dimensional refractive-index map of the optical blank.

21. (Original) The method of claim 20, wherein the step of providing information corresponding to a three-dimensional refractive-index map of the optical blank includes transmitting the information using e-mail.

22. (Original) The method of claim 20, wherein the step of providing information corresponding to a three-dimensional refractive-index map of the optical blank includes transmitting the information over the Internet.

23. (Original) The method of claim 20, wherein the step of providing information corresponding to a three-dimensional refractive-index map of the optical blank includes transmitting the information using a telecommunications network.

24. (Original) The method of claim 23, wherein the network is a wireless network.

25. (Original) The method of claim 20, wherein the step of providing information corresponding to a three-dimensional refractive-index map of the optical blank includes physical delivery of a computer readable medium having stored thereon a data structure, the data structure including at least one field containing information corresponding to a three-dimensional map of the optical blank.

26. (Original) The method of claim 12, further comprising the step of storing data corresponding to the three dimensional map on a medium.

27. (Original) The method of claim 26, wherein the medium includes paper.

28. (Original) The method of claim 26, wherein the medium includes an optical storage device.

29. (Original) The method of claim 26, wherein the medium includes a floppy disk.

30. (Original) The method of claim 26, wherein the medium includes a hard disk.

31. (Original) The method of claim 26, wherein the medium includes electronic memory.

32. (Original) The method of claim 26, wherein the medium includes a compact disk.

33. (Withdrawn) A method for making an optical device having specified refractive-index characteristics, the optical device being derived from a boule being dimensionally characterized by a radial axis and an axis normal to the radial axis, the method comprising:

extracting a radial strip from the boule, the strip having a cross-sectional area in a plane formed by the radial axis and the axis normal to the radial axis;

taking a plurality of refractive index measurements of the strip at a plurality of locations in the cross-sectional area; and

converting the plurality of refractive index measurements into a three-dimensional map of the boule, the three-dimensional map including a plurality of calculated refractive index values distributed throughout the interior of the boule.

34. (Withdrawn) The method of claim 33, further comprising the step of creating a homogeneity map of the optical blank.

35. (Withdrawn) The method of claim 33, wherein the step of taking is performed using a phase measuring interferometer.

36. (Withdrawn) The method of claim 33, wherein the step of taking is performed using the PHOM method.

37. (Withdrawn) The method of claim 33, wherein the step of taking is performed using the index oil method.

38. (Withdrawn) The method of claim 33, wherein the strip has a width in a range between X-mm and Y-mm.

39. (Withdrawn) The method of claim 33, wherein the step of extracting includes grinding and polishing each surface of the strip.

40. (Withdrawn) The method of claim 33, further comprising:

integrating calculated refractive index values along the normal axis at a plurality of points on the radial axis to thereby create a calculated two-dimensional map of calculated two dimensional values;

using the plurality of refractive index measurements to create a measured two dimensional map;

taking the difference of the calculated two dimensional values from corresponding ones of the plurality of refractive index measurements to generate difference values; and

distributing the difference values along the normal axis to create a quasi three dimensional map of refractive index values distributed throughout the boule.

41. (Withdrawn) The method of claim 33, further comprising:

providing the optical blank; and

providing information corresponding to a three-dimensional refractive-index map of the optical blank.

42. (Withdrawn) The method of claim 41, wherein the step of providing information corresponding to a three-dimensional refractive-index map of the optical blank includes transmitting the information using e-mail.

43. (Withdrawn) The method of claim 41, wherein the step of providing information corresponding to a three-dimensional refractive-index map of the optical blank includes transmitting the information over the Internet.

44. (Withdrawn) The method of claim 41, wherein the step of providing information corresponding to a three-dimensional refractive-index map of the optical blank includes transmitting the information using a telecommunications network.

45. (Withdrawn) The method of claim 44, wherein the network is a wireless network.

46. (Withdrawn) The method of claim 41, wherein the step of providing information corresponding to a three-dimensional refractive-index map of the optical blank includes physical delivery of a computer readable medium having stored thereon a data structure, the data structure including at least one field containing information corresponding to a three-dimensional map of the optical blank.

47. (Withdrawn) The method of claim 33, further comprising the step of storing data corresponding to the three dimensional map on a medium.

48. (Withdrawn) The method of claim 47, wherein the medium includes paper.

49. (Withdrawn) The method of claim 47, wherein the medium includes an optical storage device.

50. (Withdrawn) The method of claim 47, wherein the medium includes a floppy disk.

51. (Withdrawn) The method of claim 47, wherein the medium includes a hard disk.

52. (Withdrawn) The method of claim 47, wherein the medium includes electronic memory.

53. (Withdrawn) The method of claim 33, further comprising the step of extracting an optical blank from the boule, the optical blank being taken from a portion of the boule having calculated refractive index values that substantially match the specified refractive-index characteristics.

54. (Withdrawn) The method of claim 33, further comprising the step of utilizing the three-dimensional map to identify a portion of the boule that corresponds to a predetermined specification.

55. (Withdrawn) The method of claim 33, further comprising the step of storing information corresponding to the three-dimension map on a medium.

56. (Withdrawn) The method of claim 55, wherein the information includes human readable indicia.

57. (Withdrawn) The method of claim 55, wherein the information includes machine readable indicia.

58. (Withdrawn) The method of claim 55, wherein the medium is a computer readable medium.

59. (Withdrawn) The method of claim 55, wherein the medium is an optical medium.

60. (Withdrawn) The method of claim 55, wherein the medium includes a paper medium.

61. (Withdrawn) The method of claim 33, further comprising the step of transmitting information corresponding to the three-dimension map over an electronic medium.

62. (Withdrawn) The method of claim 33, further comprising the step of transmitting information corresponding to the three-dimension map over an optical medium.

63. (Withdrawn) The method of claim 33, further comprising the step of providing information corresponding to the three-dimension map to a customer.

64. (Original) A method for processing a request for an optical device having predetermined refractive-index characteristics, the method comprising:

taking a plurality of refractive index measurements at a plurality of interior locations within a boule;

converting the plurality of refractive index measurements into a three-dimensional map of the boule, the three-dimensional map including a plurality of refractive index values distributed throughout the interior of the optical member; and

providing information corresponding to the three-dimensional map.

65. (Original) The method of claim 64, wherein the step of providing information corresponding to a three-dimensional refractive-index map of the optical blank includes transmitting the information using e-mail.

66. (Original) The method of claim 64, wherein the step of providing information corresponding to a three-dimensional refractive-index map of the optical blank includes transmitting the information over the Internet.

67. (Original) The method of claim 64, wherein the step of providing information corresponding to a three-dimensional refractive-index map of the optical blank includes transmitting the information using a telecommunications network.

68. (Original) The method of claim 67, wherein the network is a wireless network.

69. (Original) The method of claim 64, wherein the step of providing information corresponding to a three-dimensional refractive-index map of the optical blank includes physical delivery of a computer readable medium having stored thereon a data structure, the data structure including at least one field containing information corresponding to a three-dimensional map of the optical blank.

70. (Original) The method of claim 64, further comprising the step of storing data corresponding to the three dimensional map on a medium.

71. (Original) The method of claim 64, wherein the medium includes paper.

72. (Original) The method of claim 64, wherein the medium includes an optical storage device.

73. (Original) The method of claim 64, wherein the medium includes a floppy disk.

74. (Original) The method of claim 64, wherein the medium includes a hard disk.

75. (Original) The method of claim 64, wherein the medium includes electronic memory.

76. (Withdrawn) A method for making an optical device having predetermined refractive-index characteristics, the optical device being derived from a boule being dimensionally characterized by a radial axis and an axis normal to the radial axis, the method comprising:

placing the boule in a measurement tool;

disposing index-matching fluid in an interface volume formed between the boule and the measurement tool, the index-matching fluid having a predetermined refractive index substantially identical to the refractive index of the measurement tool;

taking at least one set of refractive index measurements of the boule by directing light into the boule via the measurement tool, the light being directed in a direction normal to a plane formed by the radial axis and the axis normal to the radial axis; and

converting the set of refractive index measurements into a three-dimensional map of the boule, the three-dimensional map including a plurality of calculated refractive index values distributed throughout the interior of the boule.